U.S. Energy DATABOOK

A summary of national and global energy indicators



MARCH 25, 2019

FEDERAL RESERVE BANK of KANSAS CITY

SUMMARY OF CURRENT ENERGY CONDITIONS

The number of total active drilling rigs in the United States declined 3.0 percent from a month ago, but was up 2.1 percent from a year ago. U.S. crude oil production dipped 0.5 percent in December 2018, while natural gas production rose 3.4 percent. Crude oil prices continued to increase in March. For the week ending March 15th, West Texas Intermediate (WTI) crude oil averaged \$57.81 per barrel and North Sea Brent averaged \$65.71 per barrel, an increase of 7.3 percent and 3.7 percent in the last month, respectively. The Henry Hub natural gas spot price averaged \$2.89 per million Btu for the week ending March 15th, growing 8.6 percent in the last month. U.S. crude oil and petroleum products exports increased 3.0 percent, while imports decreased 3.8 percent in the last month. Global demand for petroleum edged up 0.3 percent in the fourth quarter of 2018, and global petroleum production inched down 0.2 percent in February 2019.

This databook provides current economic indicators to help monitor trends and allow comparison of past information. These indicators include: oil and natural gas prices; global petroleum production and demand; U.S. oil production and petroleum demand; U.S. crude oil stocks; OECD petroleum stocks; U.S. oil imports; U.S. oil exports; oil and gas drilling rig counts; and U.S. natural gas production. These indicators can be found on the following pages.



The Federal Reserve Bank of Kansas City's headquarters is located at 1 Memorial Drive in the heart of Kansas City, Missouri. The Federal Reserve Bank of Kansas City serves the Tenth Federal Reserve District, which includes Colorado, Kansas, western Missouri, Nebraska, northern New Mexico, Oklahoma and Wyoming. There are three branches across the Tenth Federal Reserve District located in Denver, Oklahoma City, and Omaha.

\$1

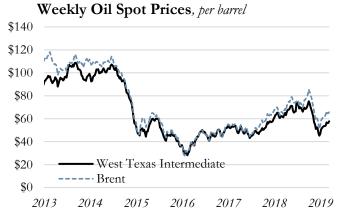
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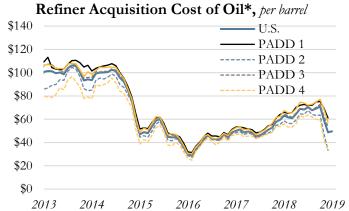
2013

2014

2015

Weekly data through March 15, 2019







Monthly Gasoline Prices by PADD, per gallon \$4.50 \$4.00 \$3.50 \$3.00 \$2.50 \$2.00 East Coast (PADD 1) \$1.50 ----- Midwest (PADD 2) - Gulf Coast (PADD 3) \$1.00 Rocky Mountain (PADD 4) West Coast (PADD 5) \$0.50 2018 2019 2013 2014 2015 2016 2017

Weekly Spot Prices, Change from

2016

2017

2018

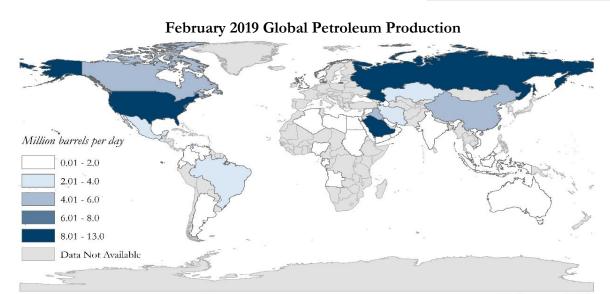
W 11 0 D	Current	1 Week	1 Month	3 months	6 Months	1 Year
Weekly Spot Prices	3/15/19	Ago	Ago	Ago	Ago	Ago
West Texas Intermediate	\$57.81	\$1.46	\$3.93	\$6.27	-\$11.15	-\$3.47
Brent	\$65.71	\$0.98	\$2.35	\$6.20	-\$12.40	\$1.57
Henry Hub	\$2.89	-\$0.39	\$0.23	-\$1.49	-\$0.04	\$0.18

2019

Monthly Gasoline Spot Prices, Change from

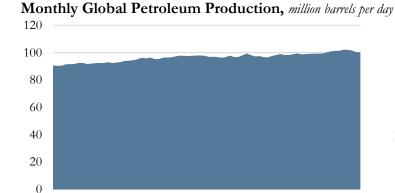
	Current	1 Month	3 months	6 Months	1 Year
Geographic Area	Feb-19	Ago	Ago	Ago	Ago
East Coast (PADD 1)	\$2.35	\$0.10	-\$0.15	-\$0.42	-\$0.18
Midwest (PADD 2)	\$2.31	\$0.25	-\$0.01	-\$0.45	-\$0.10
Gulf Coast (PADD 3)	\$2.11	\$0.15	-\$0.10	-\$0.46	-\$0.14
Rocky Mountain (PADD 4)	\$2.19	-\$0.04	-\$0.60	-\$0.80	-\$0.26
West Coast (PADD 5)	\$2.93	\$0.01	-\$0.37	-\$0.38	-\$0.20

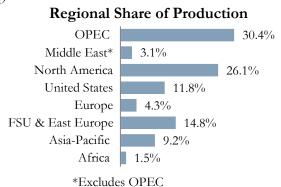
^{*}The cost of crude oil, including transportation and other fees paid by the refiner.

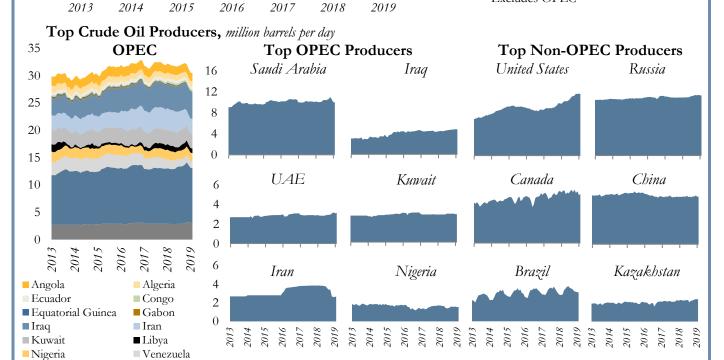


Source: Energy Information Administration/Haver Analytics

February 2019







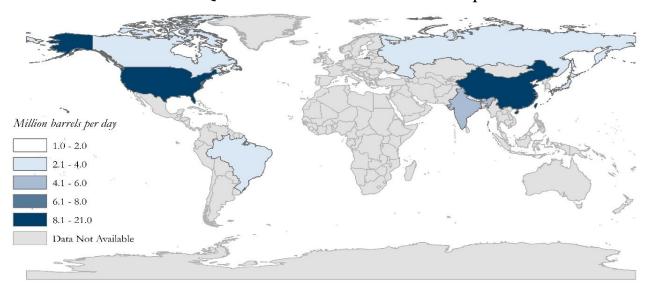
Note: OPEC country production values are for crude oil and non-OPEC country data is for petroleum production.

Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

 \blacksquare UAE

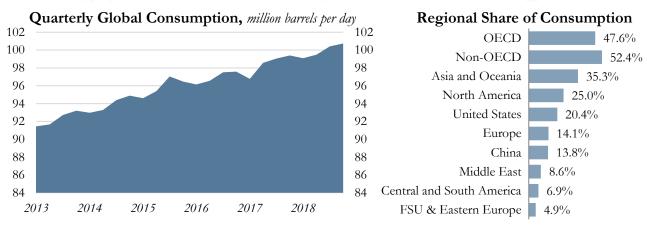
■ Saudi Arabia

Fourth Quarter 2018 Global Petroleum Consumption

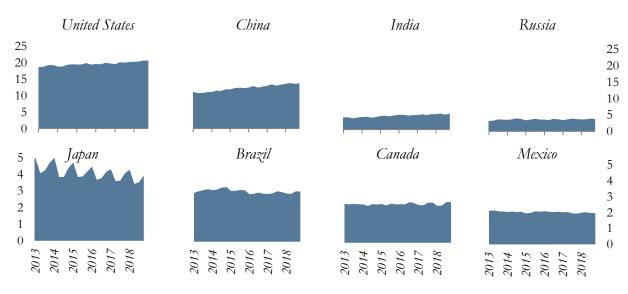


Source: Energy Information Administration/Haver Analytics

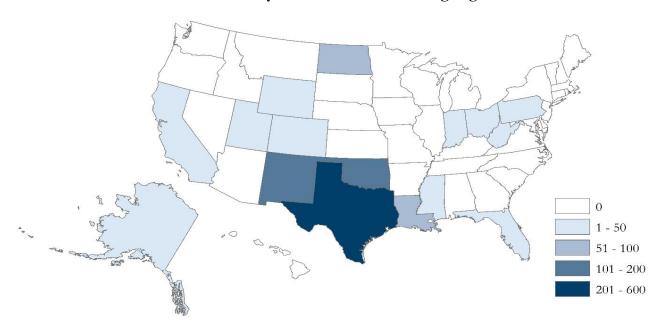
Fourth Quarter 2018



Top Petroleum Consumers, million barrels per day



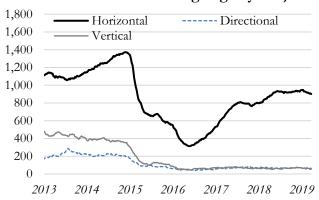
March 2019 Weekly Active Oil & Gas Drilling Rig Counts



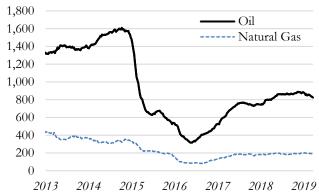
Source: Baker I Jughes/I Javer Analytics

March 22, 2019

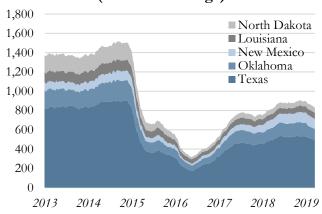
U.S. Active Drilling Rigs by Trajectory



U.S. Active Drilling Rigs by Type



Top Five States for Drilling Activity (Total Active Rigs)



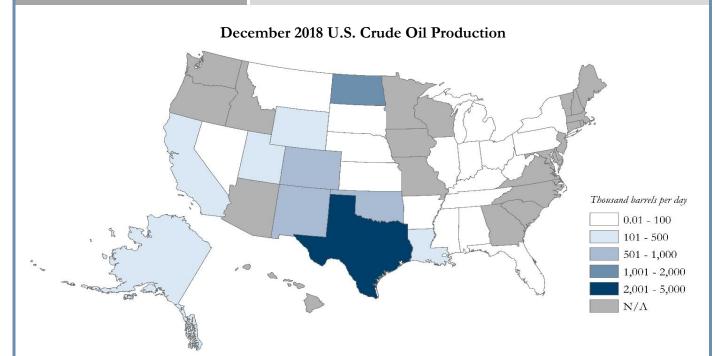
Rig Count By Type

	Current	1 Month	3 Months	1 Year
Rig Type	Week	Ago	Ago	Ago
Oil	824	853	883	804
Gas	192	194	197	190
Misc	0	0	0	1
Total	1016	1047	1080	995

Rig Count By Type, Change from

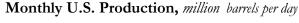
	Current	1 Month	3 Months	1 Year
Rig Type	Week	Ago	Ago	Ago
Oil	-	-3.4%	-6.7%	2.5%
Gas	-	-1.0%	-2.5%	1.1%
Misc	-	-	-	-100.0%
Total	-	-3.0%	-5.9%	2.1%

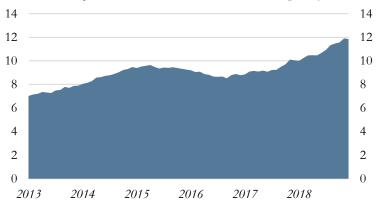
Source: Baker Hughes/Haver Analytics



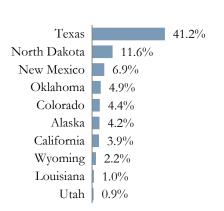
Source: Baker I Iughes/I Iaver Analytics

December 2018

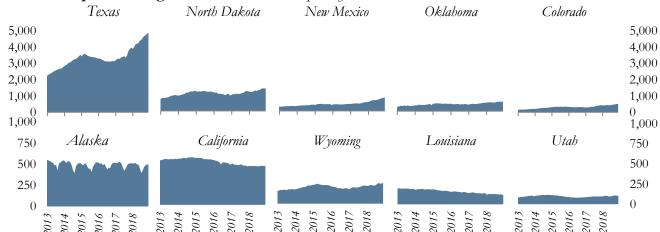




Share of Production

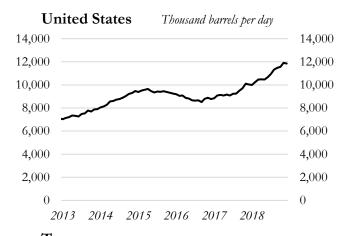


Top Producing States, thousand barrels per day



Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

Data through December 2018



	United States Thousand barrels per day		
Dec-18	11,849		
Month Ago	11,905	-0.5%	
3 Months Ago	11,470	3.3%	
6 Months Ago	10,672	11.0%	
1 Year Ago	10,040	18.0%	

Texas 5,000 —	5,000
4,000	4,000
3,000	3,000
2,000	2,000
1,000	1,000
0 —	0

Thousand barre	Texas	Change from
Dec-18	4,877	3
Month Ago	4,842	0.7%
3 Months Ago	4,692	4.0%
6 Months Ago	4,406	10.7%
1 Year Ago	3,963	23.1%
Share of U.S. Pro	oduction	41.2%

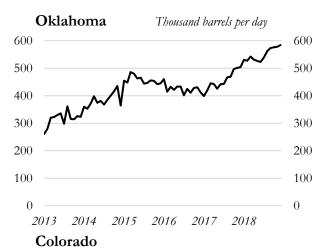
North Dakota	
1,500 —	1,500
1,200	1,200
900	900
600	600
300	300
0 ———	0
2013 2014 2015 2016 2017 2018	

North	Dakota	Change	
Thousand barre	els per day	from	
Dec-18	1,373		
Month Ago	1,355	1.4%	
3 Months Ago	1,340	2.5%	
6 Months Ago	1,219	12.7%	
1 Year Ago	1,183	16.1%	
Share of U.S. Pro	Share of U.S. Production		

New Mexico	
900	900
750	750
600	600
450	450
300	300
150	150
0	0
2013 2014 2015 2016 2017 2018	

New I	Change			
Thousand barrels	per day	from		
Dec-18	816			
Month Ago	803	1.6%		
3 Months Ago	739	10.4%		
6 Months Ago	656	24.3%		
1 Year Ago	537	52.0%		
Share of U.S. Production 6.9%				

Data through December 2018



Okl : Thousand barrels	ahoma per day	Change from
Dec-18	584	
Month Ago	578	1.1%
3 Months Ago	573	1.9%
6 Months Ago	523	11.7%
1 Year Ago	504	15.9%
Share of U.S. Prod	duction	4.9%

Colorado	
600	600
500	500
400	400
300	300
200	200
100	100
0 —	0
2013 2014 2015 2016 2017 2018	

C	Colorado	Change
Thousand barre	els per day	from
Dec-18	517	
Month Ago	515	0.3%
3 Months Ago	473	9.2%
6 Months Ago	424	22.0%
1 Year Ago	436	18.4%
Share of U.S. Pr	oduction	4.4%

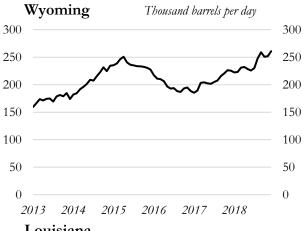
Alaska	
500 —	600
	7 500
400 4 4 4 4 7	400
500	300
200	200
00	100
0	0
2013 2014 2015 2016 2017 2018	
California	

Thousand barrel	Alaska 's per day	Change from
Dec-18	496	
Month Ago	497	-0.3%
3 Months Ago	471	5.1%
6 Months Ago	451	10.0%
1 Year Ago	512	-3.3%
Share of U.S. Pro	duction	4.2%

Gumomu	
600	600
500	500
400	400
300	300
200	200
100	100
0	0
2013 2014 2015 2016 2017 2018	

Ca	llifornia	Change
Thousand barre	ls per day	from
Dec-18	464	
Month Ago	466	-0.4%
3 Months Ago	465	-0.2%
6 Months Ago	462	0.5%
1 Year Ago	461	0.6%
Share of U.S. Pro	oduction	3.9%

Data through December 2018



Louisiana	
300 —	300
250	250
200 ~~~~	200
150	150
100	100
50 —	50
0	0
Utah	

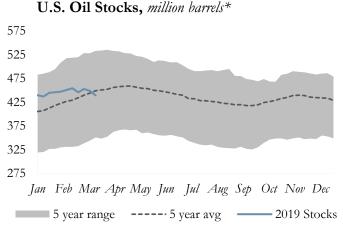
150	150
125	125
100	100
75	75
50 ———	50
25 ———	25
0	0

W Thousand barre	yoming ls per day	Change from
Dec-18	261	
Month Ago	252	3.7%
3 Months Ago	259	0.7%
6 Months Ago	226	15.5%
1 Year Ago	225	15.7%
Share of U.S. Pro	oduction	2.2%

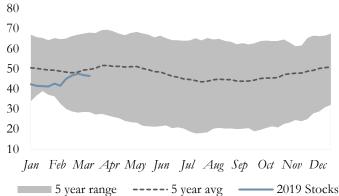
Lo v Thousand barrels	uisiana s per day	Change from
Dec-18	120	
Month Ago	124	-2.7%
3 Months Ago	124	-2.9%
6 Months Ago	129	-6.9%
1 Year Ago	138	-13.0%
Share of U.S. Pro	duction	1.0%

Thousand barrels	Utah per day	Change from
Dec-18	102	
Month Ago	106	-4.2%
3 Months Ago	109	-7.0%
6 Months Ago	95	7.2%
1 Year Ago	94	7.4%
Share of U.S. Prod	luction	0.9%

March 2019 Weekly U.S. Crude Oil Stocks



Cushing, OK Oil Stocks, million barrels



40	U.S. Oil Days of Supply, days
35	
30	
25	
20	
15	Ian Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

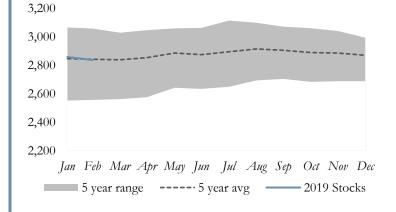
5 year range ----- 5 year avg 2019 Days

Crude Oil Stocks	1 Week	1 Year
Change from	Ago	Ago
U.S.	-2.1%	2.6%
Cushing, OK	-1.0%	57.6%
Days of Supply	-2.8%	3.8%
East Coast (PADD 1)	0.2%	11.8%
Midwest (PADD 2)	-1.3%	24.8%
Gulf Coast (PADD 3)	-3.9%	-8.3%
Rocky Mountain (PADD 4)	1.6%	-5.5%
West Coast (PADD 5)	1.0%	5.3%

^{*}Stocks include those domestic and Customs-cleared foreign stocks held at, or in transit to, refineries and bulk terminals, and stocks in pipelines.

February 2019 OECD Commercial Petroleum Inventory

OECD Commercial Petroleum Inventory, million barrels

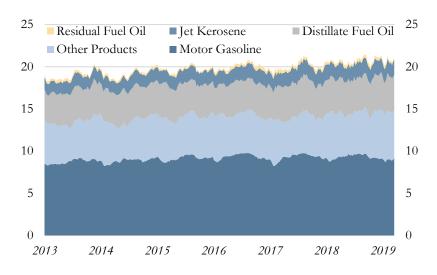


Petroleum	Change		
Mill	Million Barrels		
Current Month	2,837		
1 Month Ago	2,858	-0.7%	
3 Months Ago	2,853	-0.6%	
6 Months Ago	2,854	-0.6%	
1 Year Ago	2,846	-0.3%	

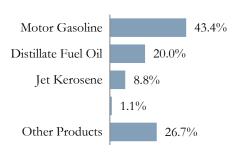
March 2019 Weekly U.S. Demand for Petroleum Products

4-Week Averages

All Petroleum Products, million barrels per day



Share of Total Consumption



U.S. Consumption by Product & Percent Change

U.S. Consumption by Product, thousand barrels per day

	Current 3/15/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
All Products	21,065	20,622	21,206	21,376	20,487
Motor Gasoline	9,148	9,021	9,086	9,704	9,276
Distillate Fuel Oil	4,220	4,195	4,240	4,042	3,899
Jet Kerosene	1,847	1,600	1,688	1,812	1,723
Residual Fuel Oil	232	253	263	394	322
Other Products	5,618	5,553	5,929	5,424	5,267

U.S. Consumption by Product, Change from

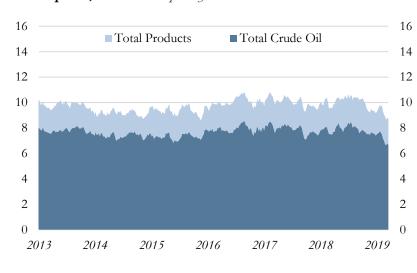
	Current 3/15/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
All Products	-	2.1%	-0.7%	-1.5%	2.8%
Motor Gasoline	-	1.4%	0.7%	-5.7%	-1.4%
Distillate Fuel Oil	-	0.6%	-0.5%	4.4%	8.2%
Jet Kerosene	-	15.4%	9.4%	1.9%	7.2%
Residual Fuel Oil	-	-8.3%	-11.8%	-41.1%	-28.0%
Other Products	-	1.2%	-5.2%	3.6%	6.7%

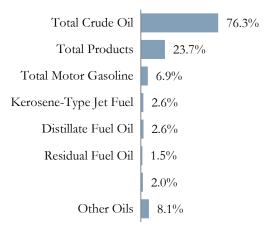
March 2019 Weekly U.S. Imports of Crude Oil & Petroleum Products

4-Week Averages

Imports, million barrels per day

Share of Total Imports





U.S. Imports by Product*

Thousand barrels per day

	<i>Current</i> 3/15/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
Total Crude Oil	6,649	6,990	7,549	7,704	7,487
Total Products	2,066	2,066	1,777	2,560	2,065
Total Motor Gasoline	599	506	423	867	555
Kerosene-Type Jet Fuel	223	159	110	199	121
Distillate Fuel Oil	229	366	226	188	204
Residual Fuel Oil	135	175	81	246	207
Propane/Propylene	178	199	177	128	157
Other Oils	702	661	760	923	821
Total Imports	8,715	9,056	9,326	10,264	9,552

U.S. Imports by Product, Change from

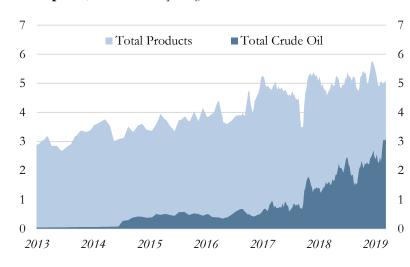
	Current	1 Month	3 Months	6 Months	1 Year
	3/15/19	Ago	Ago	Ago	Ago
Total Crude Oil	-	-4.9%	-11.9%	-13.7%	-11.2%
Total Products	-	0.0%	16.3%	-19.3%	0.0%
Total Motor Gasoline	-	18.4%	41.6%	-30.9%	7.9%
Kerosene-Type Jet Fuel	-	40.3%	102.7%	12.1%	84.3%
Distillate Fuel Oil	-	-37.4%	1.3%	21.8%	12.3%
Residual Fuel Oil	-	-22.9%	66.7%	-45.1%	-34.8%
Propane/Propylene	-	-10.6%	0.6%	39.1%	13.4%
Other Oils	-	6.2%	-7.6%	-23.9%	-14.5%
Total Imports	-	-3.8%	-6.6%	-15.1%	-8.8%

^{*}Totals may not sum due to component rounding

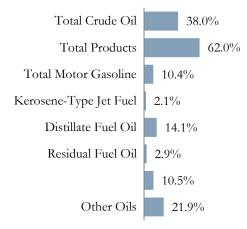
March 2019 Weekly U.S. Exports of Crude Oil & Petroleum Products

4-Week Averages

Exports, million barrels per day



Share of Total Exports



U.S. Exports by Product*

Thousand barrels per day

	<i>Current</i> 3/15/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
Total Crude Oil	3,025	2,696	2,561	1,871	1,501
Total Products	4,928	5,027	5,778	4,748	4,821
Total Motor Gasoline	829	818	1,080	610	692
Kerosene-Type Jet Fuel	168	205	203	180	196
Distillate Fuel Oil	1,118	1,219	1,456	1,217	1,099
Residual Fuel Oil	234	251	280	248	268
Propane/Propylene	839	819	925	841	870
Other Oils	1,740	1,714	1,834	1,653	1,697
Total Exports	7,953	7,723	8,339	6,618	6,322

U.S. Exports by Product, Change from

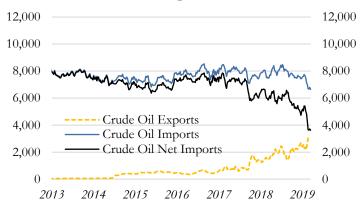
	Current	1 Month	3 Months	6 Months	1 Year
	3/15/19	Ago	Ago	Ago	Ago
Total Crude Oil	-	12.2%	18.1%	61.7%	101.5%
Total Products	-	-2.0%	-14.7%	3.8%	2.2%
Total Motor Gasoline	-	1.3%	-23.2%	35.9%	19.8%
Kerosene-Type Jet Fuel	-	-18.0%	-17.2%	-6.7%	-14.3%
Distillate Fuel Oil	-	-8.3%	-23.2%	-8.1%	1.7%
Residual Fuel Oil	-	-6.8%	-16.4%	-5.6%	-12.7%
Propane/Propylene	-	2.4%	-9.3%	-0.2%	-3.6%
Other Oils	-	1.5%	-5.1%	5.3%	2.5%
Total Exports	-	3.0%	-4.6%	20.2%	25.8%

^{*}Totals may not sum due to rounding

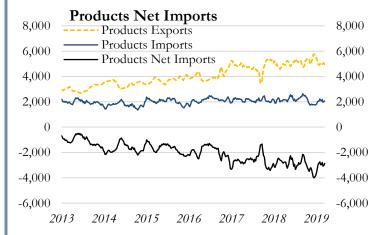
March 2019 Weekly U.S. Net Imports of Crude Oil & Petroleum Products

4-Week Averages, Thousand barrels per day

Crude Oil Net Imports



Crude Oil Net Imports Thousand barrels per day			
3/15/19	3,624		
Month Ago	4,294	-15.6%	
3 Months Ago	4,988	-27.3%	
6 Months Ago	5,833	-37.9%	
1 Year Ago	5,986	-39.5%	



Produ Tho	Change from		
3	/15/19	-2,862	
Mor	ith Ago	-2,961	-
3 Mont	hs Ago	-4,001	-
6 Mont	hs Ago	-2,188	-
1 Ye	ear Ago	-2,756	-

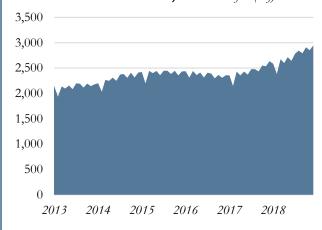
Total Net Imports		4.4.000
14,000 Total Exports		14,000
12,000 — Total Imports		12,000
Total Net Imports	My Many	10,000
8,000		8,000
6,000 WM WM WM	WA WA	6,000
4,000	~~\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	4,000
2,000	W. MAY	2, 000
2013 2014 2015 2016	2017 2018 2019	Ü

Total Net I	Total Net Imports			
Thousand barrel	Thousand barrels per day			
3/15/19	762			
Month Ago	1,333	-42.8%		
3 Months Ago	988	-22.9%		
6 Months Ago	3,645	-79.1%		
1 Year Ago	3,230	-76.4%		

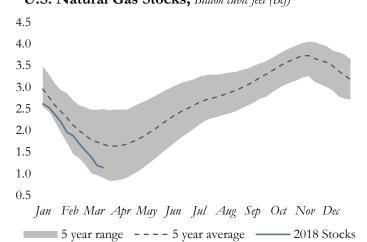
Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

U.S. Natural Gas Production & Stocks

December 2018 Production Total U.S. Production, Billion cubic feet (Bcf)



March 2019 Weekly Stocks U.S. Natural Gas Stocks, Billion cubic feet (Bcf)



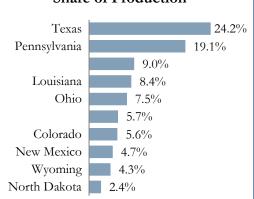
U.S. Natural Gas, Billion cubic feet (Bcf)

	Current Period*	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
U.S. Production	2,946	2,849	2,790	2,641	2,635
U.S. Stocks	1,143	1,705	2,773	2,722	1,446

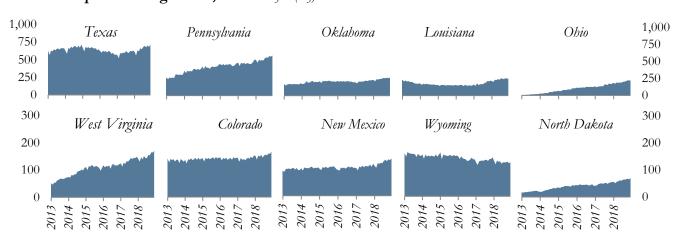
U.S. Natural Gas, Change from

		1 Month Ago	3 Months Ago	6 Months Ago	
U.S. Production	-	3.4%	5.6%	11.5%	11.8%
U.S. Stocks	-	-33.0%	-58.8%	-58.0%	-21.0%

Share of Production



Top Producing States, Billion cubic feet (Bcf)



*U.S. production is monthly data & stocks are weekly data

Definitions:

West Texas Intermediate: A crude oil produced in Texas and southern Oklahoma which serves as a reference or "marker" for pricing a number of other crude streams and is traded in the domestic spot market at Cushing, Oklahoma.

Brent: A blended crude oil produced in the North Sea region which serves as a reference or "marker" for pricing a number of other international crude streams.

Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Refined petroleum products include but are not limited to gasolines, kerosene, distillates (including No. 2 fuel oil), liquefied petroleum gas, asphalt, lubricating oils, diesel fuels, and residual fuels.

Notes:

Page 2: Petroleum Administration for Defense Districts (PADD) are geographic aggregations of the 50 States and the District of Columbia into five districts by the Petroleum Administration for Defense in 1950. These districts were originally defined during World War II for purposes of administering oil allocation. For more information, visit: http://www.eia.gov/petroleum/supply/monthly/pdf/append.pdf

Page 3: For OPEC countries & the U.S., only crude oil production data is used. For non-OPEC countries (excluding the U.S.) total petroleum production data is used. Total petroleum production includes includes production of crude oil (including lease condensates), natural gas plant liquids, biofuels, other liquids, and refinery processing gains.

Page 5: The active rig count is the number of rigs actively exploring for or developing oil or natural gas. Rig counts provide an indicator of new drilling activity and potential for expanded crude oil or natural gas production.

Pages 10: Crude oil stocks are stocks of crude oil and lease condensate held at refineries, in pipelines, at pipeline terminals, and on leases.

Crude oil stocks for Cushing include domestic and foreign crude oil stocks held in tank farms in Lincoln, Payne, and Creek counties in Oklahoma. Cushing, Oklahoma, is the designated delivery point for NYMEX crude oil futures contracts.

Days of supply are calculated by taking the current stock level and dividing by product supplied (used as an estimate of demand) averaged over the most recent four-week period. For crude oil, refinery inputs of crude oil are used as a proxy for demand.

Notes:

Page 11: Petroleum Consumption approximately represents consumption of petroleum products because it measures the disappearance of these products from primary sources, i.e., refineries, natural gas-processing plants, blending plants, pipelines, and bulk terminals.

Data Revisions

Most data are revised periodically to correct for errors and incorporate additional information as it becomes available. Data shown in this report are subject to change.

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